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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,279	02/03/2004	Madhusudan Raghavan	GP-304292	9655

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EXAMINER	
CHANG, CHING	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,279	RAGHAVAN ET AL.	
	Examiner	Art Unit	
	Ching Chang	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/14/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,and 27-28* is/are rejected.

7)☒ Claim(s) *23-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/15/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the election of the species Figs. 4-6 filed on 01/14/2005, claims 1-28 being readable thereon.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1(a). ***Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent 6,688,267.***

Although the claims are not identical, they are not patentably distinct from each other because the claims of the instant application are substantially the same as that claimed in the US '267 Patent; however, the scope of of the claim 1 in this instant application lacks " at least one secondary actuator.....for a secondary opening of said

engine valve ", and thus is broader than that of the claim 12 of the US '267 Patent, respectively.

1(b). ***Claims 14-17, and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12, 17, 18, 14, and 19 of U.S. Patent 6,688,267, respectively.***

Although the claims are not identical, they are not patentably distinct from each other because the claims of the instant application are substantially the same as that claimed in the US '267 Patent; however, the scope of each of the claims 14-19, and 19 in this instant application lacks " at least one secondary actuator.....for a secondary opening of said engine valve ", and thus is broader than that of each of the claims 12, 17-18, 14, and 19 of the US '267 Patent, respectively.

1(c). ***Claims 20-21 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent 6,688,267 in view of MacNeill (US Patent 3,157,166).***

Although the claims are not identical, they are not patentably distinct from each other because the claims of the instant application are substantially the same as that claimed in the US '267 Patent; however, the scope of either claim 20 or claim 21 in this instant application lacks " at least one secondary actuator.....for a secondary opening of said engine valve ", and thus is broader than that of the claim 12 of the US '267 Patent in view of a conventional linear type actuator (70) in US '581 Patent with a

conventional engine valve spring(13) disposed in a housing (See Figs. 1-8) as taught in US '166.

1(d). ***Claim 18 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent 6,688,267 in view of Kumm (US Patent 5,176,581).***

Although the claims are not identical, they are not patentably distinct from each other because the claims of the instant application are substantially the same as that claimed in the US '267 Patent; however, the scope of claim 18 in this instant application lacks " at least one secondary actuator.....for a secondary opening of said engine valve ", and thus is broader than that of the claim 12 of the US '267 Patent with a conventional linear type actuator (70) as taught in US '581 Patent.

1(e). ***Claim 22 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent 6,688,267 in view of Slagley (US Patent 4,836,155).***

Although the claims are not identical, they are not patentably distinct from each other because the claims of the instant application are substantially the same as that claimed in the US '267 Patent; however, the scope of claim 22 in this instant application lacks " at least one secondary actuator.....for a secondary opening of said engine valve ", and thus is broader than that of the claim 12 of the US '267 Patent with a conventional

intermediate finger follower (22; 56) with a first roller (24) and a second roller (26) as taught in US '155 Patent.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. ***Claims 1-2, 4-5, 8, 12, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Slagley et al. (US Patent 4,836,155).***

Slagley discloses a valve actuator assembly (See Figs. 1-6) for an engine of a vehicle and the method of operating it comprising: a movable engine valve (12); a movable roller finger follower (34, 30) operatively engaged with said engine valve; a rotatable cam (14, 16); an intermediate finger follower (20; 56, 58) operatively engaged with said roller finger follower and said cam; and at least one actuator (60, 62) operatively cooperating with said intermediate finger follower to position said intermediate finger follower in horizontal and vertical directions relative to said cam to move said roller finger follower to position said engine valve at a desired lift and phasing; wherein said roller finger follower has one end in contact with one end of said engine valve; wherein said at least one actuator is pivotally connected to one end of said intermediate finger follower; wherein said intermediate finger follower is operatively

engaged with said rotatable cam through a first roller (24), and said intermediate finger follower is operatively engaged with said movable roller finger follower through a second roller (26) to affect movement of the engine valve; wherein said intermediate finger follower pivots about a first pivot point (between 58 and 60) which is connected to said at least one actuator, and said roller finger follower pivots about a second pivot point (between 34 and 36).

4. ***Claims 1-2, 4-5, 12, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by MacNeill et al. (US Patent 3,157,166).***

MacNeill discloses a valve actuator assembly (See Figs. 1-8) for an engine of a vehicle and the method of operating it comprising: a movable engine valve (4); a movable roller finger follower (16) operatively engaged with said engine valve; a rotatable cam (28); an intermediate finger follower (19, 21) operatively engaged with said roller finger follower and said cam; and at least one actuator (36, 42, 43) operatively cooperating with said intermediate finger follower to position said intermediate finger follower in horizontal and vertical directions relative to said cam to move said roller finger follower to position said engine valve at a desired lift and phasing; wherein said roller finger follower has one end in contact with one end of said engine valve; wherein said at least one actuator is pivotally connected to one end of said intermediate finger follower; wherein said intermediate finger follower pivots about a first pivot point (22) which is connected to said at least one actuator, and said roller finger follower pivots about a second pivot point (23).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. ***Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slagley et al. (as applied to claim 8 above) in view of Kumm (US Patent 5,176,581).***

Slagley further discloses a ramp (28) which guides movement of said second roller, however, fails to disclose the said ramp being a stationary curved ramp.

The patent to Kumm on the other hand, teaches that it is conventional in a variable speed drive system art, to utilize a stationary curved ramp (76) to guide a roller bearing follower (77)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the stationary curved ramp as taught by Kumm in the Slagley device, since the use thereof would provide an improved engine actuating mechanism, to impose a more efficient variable valve movement.

7. ***Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Slagley et al. in view of Kumm (as applied to claim 9 above), and further in view of Wride (US Patent 5,642,692).***

The modified Slagley device discloses the invention, however, fails to disclose the said second roller being spring-biased.

The patent to Wride on the other hand, teaches that it is conventional in the engine valve control mechanism art, to utilize a curved ramp (44, Fig. 7) to guide the contact between the components (51, 2), and with a spring (30) to ensure a positive contact.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the spring as taught by Wride in the modified Slagley device and method, since the use thereof would provide an improved engine actuating mechanism, to impose a more positive and efficient variable valve movement.

8. ***Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Slagley et al. (US Patent 4,836,155) in view of Kumm (US Patent 5,176,581).***

Slagley discloses a valve actuator assembly (See Figs. 1-6) for an engine of a vehicle comprising: a movable engine valve (12); a movable roller finger follower (34, 30) operatively engaged with said engine valve; a rotatable cam (14, 16); an intermediate finger follower (20; 56, 58) operatively engaged with said cam through a first roller (24), and operatively engaged with said roller finger follower through a second roller (26), at least one actuator (60, 62) operatively cooperating with said intermediate

finger follower to position said intermediate finger follower in two directions relative to said cam to move said roller finger follower to position said engine valve at a desired lift and phasing.

Slagley further discloses a ramp (28) which guides movement of said second roller, however, fails to disclose the said ramp being a stationary curved ramp.

The patent to Kumm on the other hand, teaches that it is conventional in a variable speed drive system art, to utilize a stationary curved ramp (76) to guide a roller bearing follower (77)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the stationary curved ramp as taught by Kumm in the Slagley device, since the use thereof would provide an improved engine actuating mechanism, to impose a more positive and efficient variable valve movement.

9. ***Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Slagley et al. (as applied to claim 2 above) in view of Keller et al. (US Patent 6,666,178).***

Slagley discloses the invention, however, fails to disclose a hydraulic lash adjuster being pivotally connected to the other end of said roller finger follower.

The patent to Keller on the other hand, teaches that it is conventional in the electro-hydraulic engine valve actuator art, to utilize a hydraulic lash adjuster (108, 110) pivotally connected to the one end of each rocker arm (104, 102).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the hydraulic lash adjuster as taught by Keller in the Slagley device, since the use thereof would provide an improved engine valve actuator, which provides a better valve lash adjustment.

10. ***Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Slagley et al. (as applied to claim 12 above) in view of Vorih (US Patent 6,085,705).***

Slagley discloses the invention, however, fails to disclose the said actuator being energized and de-energized by a controller electrically.

The patent to Vorih on the other hand, teaches that it is conventional in the electro-hydraulic engine valve actuator art, to utilize a controller (500) to control a valve actuator (330).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the controller as taught by Vorih in the Slagley device, since the use thereof would provide an improved engine valve actuator, which provides a more precise control on valve movement.

11. ***Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over MacNeill (as applied to claim 2 above) in view of Keller et al. (US Patent 6,666,178).***

MacNeill discloses the invention, however, fails to disclose a hydraulic lash adjuster being pivotally connected to the other end of said roller finger follower.

The patent to Keller on the other hand, teaches that it is conventional in the electro-hydraulic engine valve actuator art, to utilize a hydraulic lash adjuster (108, 110) pivotally connected to the one end of each rocker arm (104, 102).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the hydraulic lash adjuster as taught by Keller in the MacNeill device, since the use thereof would provide an improved engine valve actuator, which provides a better valve lash adjustment.

12. ***Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over MacNeill (as applied to claim 12 above) in view of Vorih (US Patent 6,085,705).***

MacNeill discloses the invention, however, fails to disclose the said actuator being energized and de-energized by a controller electrically.

The patent to Vorih on the other hand, teaches that it is conventional in the electro-hydraulic engine valve actuator art, to utilize a controller (500) to control a valve actuator (330).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the controller as taught by Vorih in the MacNeill device, since the use thereof would provide an improved engine valve actuator, which provides a more precise control on valve movement.

13. ***Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cecur (US Patent 6,659,053) in view of Kumm (US Patent 5,176,581).***

Cecur discloses a valve actuator assembly (See Fig. 1) for an engine of a vehicle comprising: a movable engine valve (19); a movable roller finger follower (37) operatively engaged with said engine valve; a rotatable cam (29, 33); an intermediate finger follower (59, 55, 61) operatively engaged with said cam through a first roller (55), and operatively engaged with said roller finger follower through a second roller (61), at least one actuator (67) operatively cooperating with said intermediate finger follower to position said intermediate finger follower in two directions relative to said cam to move said roller finger follower to position said engine valve at a desired lift and phasing.

Slagley further discloses a curved ramp (71) which guides movement of said second roller, however, fails to disclose the said ramp being a stationary curved ramp.

The patent to Kumm on the other hand, teaches that it is conventional in a variable speed drive system art, to utilize a stationary curved ramp (76) to guide a roller bearing follower (77)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the stationary curved ramp as taught by Kumm in the Slagley device, since the use thereof would provide an cost effective engine actuating mechanism, to impose an efficient variable valve movement.

Allowable Subject Matter

14. Claims 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

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